

DIET AND GOOD HEALTH

A Popular Treatise on
the Food Question

By

DUGALD SEMPLE

Author of

"Life in the Open," "Joys of the Simple Life,"
etc., etc.

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CONTENTS

PART I

THE NATURAL FOOD OF MAN	11
FOOD SCIENCE	12
ENZYMES AND VITAMINES	18
TABLE—COMPOSITION OF FOOD PRODUCTS				20-21
PHYSIOLOGY OF DIGESTION	..	..	..	23
THE EVOLUTION OF DIET	..	..	..	26
RATIONAL NUTRITION	..	..	..	28
THE QUESTION OF CLIMATE	..	..	..	41
FOOD HABITS OF NATIONS	..	..	..	45
THE RATIONAL DIET FOR BRITAIN	..	..	..	48
UNFIRED OR SUN-COOKED FOOD	..	..	..	52
FOOD AND THE LAND PROBLEM	..	..	..	57
HIGHER ISSUES	..	..	..	65

PART II

HOW TO BEGIN	..	..	..	..	72
BALANCED MEALS	..	..	..	..	7
ORDER OF MEALS	77
DRINKING AT MEALS	79
THE DIET CURE	82
HEALTH MAXIMS	89
INDEX	91

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FOREWORD

The following pages are written with a view to establishing a clear statement as to the principles of food reform. Knowing well the conflicting theories which confront the average person who wishes to adopt a reasonable and balanced dietary, the writer has avoided all isms so as to let the conclusions arrived at be judged on their own merits. The practice, however, of food reform is equally as important as its diligent study, and must be combined with all-round healthy living.

To become a genuine food reformer is to recognise that all true and lasting reform begins with oneself. It means, further, that man will not only become a new creature with a more radiant health, but that he will be better able to promote the higher life of love and brotherhood.

DUGALD SEMPLE.

Wheelhouse, Beith.

DIET AND GOOD HEALTH

"Our first duty is to become healthy."

HEINE

WHEREVER we look to-day we see disease and suffering, caused in a great many cases by erroneous habits in eating and drinking. Most people, indeed, not only greatly overeat, but show a gross ignorance of food values apart from any knowledge of food reform. Even in our schools and colleges there is practically no importance attached to the teaching of dietetics, and it may be truly said that the medical profession as a whole is more interested in studying disease than matters relating to health.

Another strange fact is that whilst as a nation we are spending so much time and energy on our material progress, we are continuing to ignore the laws which apply to scientific feeding. It is well, therefore, that we should note carefully here, that our true welfare depends to a great extent upon our possessing healthy bodies, without which there can be no sound foundation for our higher moral and spiritual advancement.

Let us begin by affirming the necessity of self-control in appetite. This means that unless we aim at mastering our bodies, all our knowledge of food science will be of little use. To control one's own stomach is a task requiring no small amount of self-denial and almost heroic endeavour.

We must bear in mind, also, the fact that all knowledge is relative, that right diet necessitates right living. For instance, it is unwise for people who live pent up in cities to give up the use of all stimulants immediately or to adopt suddenly an uncooked diet of nuts, fruits, and salad vegetables. It is much better to make a gradual change in the daily menu until we have become accustomed to new tastes and appetites.

The desire for stimulants must be distinguished from a real sense of hunger or natural appetite. Obedience to this simple rule would solve many a dietetic problem, and would reveal new tastes in food hitherto unknown.

It is essential, also, that we chew all food thoroughly, for it is not how much we eat but how much we assimilate that is important. Dry food is much more easily digested than sloppy food, thus we should avoid soft mushes made with cereals—fit only for animals without teeth. Children especially should be taught the benefits of efficient mastication, so that they may grow up with strong and good digestions.

THE NATURAL FOOD OF MAN

The kind of food we require is determined chiefly by the nature of our digestive organs, and the country in which we live. Most scientists are agreed that man's physical anatomy shows that he is adapted to live mainly upon nuts, fruits, and other vegetable products. In the words of Baron Cuvier, "Man resembles the frugivorous or fruit-eating animals in *everything*, the carnivorous or flesh-eating animals in *nothing*. . . The natural food of man, judging from his structure, appears to consist principally of the fruits, roots, and other succulent parts of vegetables." This view is also held by Owen, Linnæus, Haeckel and Darwin.

In reply, it may be contended that man is not always living to-day in his natural climate, and that custom and experience prove that he can adapt himself—or become omnivorous—to almost any kind of diet. Whilst admitting that there is considerable truth in this statement, on the other hand there is no evidence to show that man has altered in his physical structure. Let me quote the words of the late Sir Benjamin Ward Richardson, M.D. : "By weighing the facts that now lie before us, the inference is justified that in spite of the very long time during which man has been subjected to an animal diet, he retains in preponderance his original and

12 DIET AND GOOD HEALTH

natural taste for an innocent diet derived from the first-fruits of the earth."

With regard to climate, it is true that we are not living in our natural climate, and apparently can thrive fairly well on almost any diet. But this is no reason why we should ignore our physiological food, or refuse to adapt our dietaries to our changed conditions. No one would think of feeding a horse or any other animal irrespective of its natural order of food habits. Besides, there is abundant evidence to prove that many of our diseases are due to eating not only impure but wrong and unbalanced foods. Hence it is that we must consider now food values and the proper nourishment of the human body.

FOOD SCIENCE

Foods are classified according as to whether they contain *Proteids*, *Carbohydrates*, *Fats*, or *Mineral Salts*. These compounds are built up chiefly of the elements oxygen, hydrogen, carbon, nitrogen, calcium, potassium, sodium, magnesium, phosphorus, chlorine, sulphur, silicon, iron, fluorine, and manganese.

The main source of food supply is the vegetable kingdom, in combination with the oxygen from the atmosphere. It is important to note here that practically none of these elements can be assimilated in an unorganised state; even oxygen must be organically

combined with other elements during the process of its being absorbed by the lungs.

Oxygen is the most important food element of the body, as we can only live without it for a few minutes. It exists in a free state in the atmosphere, and enters the lungs as a gas, where it unites with minerals to be carried to the tissues.

Water is composed of hydrogen and oxygen, and as such is abundantly present in the tissues of all plants and animals. It forms at least 60 per cent. of the weight of the body, and is therefore a very necessary constituent of our body.

Proteids, or flesh-formers, are organic compounds containing nitrogen, such as myosin in meat, legumin in pulse, gluten in wheat, casein in milk, and albumin in the white of egg. Nitrogen is the building element of the body, as it enables other substances to be built up through the influence of the solar forces. It takes longer to break down in the body than other elements, owing to its small affinity for oxygen. Hence it is that only a small quantity of nitrogen is necessary in food.

Carbohydrates are composed of carbon, hydrogen, and oxygen. They occur as starch in cereals, as sugar in fruits and root vegetables. Carbon unites with oxygen to form carbonic acid gas, and is thrown off by the lungs as such. It breaks down easily in the body, hence the reason why we require so

large a quantity of it in our food to liberate energy and maintain the normal temperature of the body.

Fats contain the same elements as the carbohydrates, but the hydrogen is present in a much larger quantity, thus allowing more heat to be produced by combustion. Hydrogen breaks down very slowly in the body, so that we need only a little in our diet. Fat is found in nuts, oils, nut and dairy butter, and forms about 15 per cent. of the weight of the body.

Mineral Matter or *Salts* are found chiefly in the ash constituents of plants, and are generally combined with oxygen as oxides or acids. They form about 6 per cent. of the weight of the body, and are necessary to build up the bones and teeth as well as to ensure healthy blood and sound nutrition. These salts are contained in their purest form in fruits, vegetables, nuts, and the whole grains of cereals. In order to assimilate the mineral elements we must take them as *organic salts*, and not as mineral drugs which are responsible for no end of human ailments and suffering. All the medicine which we really require is to be found in the vitalising and life-sustaining fruits and vegetables.

Our modern milling process is responsible for a great waste of these valuable food salts, because by removing the bran and outer layers of the kernel we deprive the cereals of

their mineral matter. White bread has been proven to be an ill-balanced food, and the same may be said of polished rice, pearl barley, and peeled potatoes.

The common practice of boiling vegetables in water is also a wasteful method of preparing food, for the organic salts which easily dissolve in water are usually poured down the sink.

The lack of these mineral salts in our food may even depend upon the chemical composition of the soil. Agriculturists know well that the fertility of the soil is impossible without an adequate supply of minerals. Wheat requires silica in order that the stems may be flexible and firm. Nevertheless, we still continue to overload the soil with all kinds of excrement and filth, ignoring the teaching of the great German scientist, Julius Hensel, who demonstrated that when plants are insufficiently nourished they soon become liable to all kinds of disease. Vegetables and fruit grown on a soil stimulated merely with stable manure may look larger on account of the surfeit of ammoniacal compounds, which readily absorb water, but they are deficient in food salts which give firm textures to the tissues and prevent them from too rapid decay. Hence we find that the advocates of the new soil science are able to produce healthy crops, free from many of the usual fungus pests, by the addition of com-

plete mineral fertilisers such as are to be found in the powdered basic rocks or granite dust.

The following mineral elements are to be found in all natural foods, and are chemically united with other substances during the growth of plant life. They enter into the composition of all the tissues of the body, and are in many respects the most important factors in promoting healthy nutrition.

Calcium (lime) is found chiefly in the bone and teeth tissues, and makes up about 50 per cent. of the mineral matter of the body. Cabbage and lettuce are rich in organic calcium.

Sodium is the most important of the positive tissue salts, and keeps the blood in a healthy alkaline condition. It is also necessary for the elimination of carbon-dioxide by the lungs. Spinach, lentils, unpolished rice, apples, strawberries, are all rich in sodium.

Potassium is predominant in all muscle tissues, and serves as a base for vegetable and fruit acids. The vital functions of the cells of the body are closely related to this element. Baked potatoes, chestnuts, and grapes are rich in potassium.

Magnesium gives flexibility to the bones and elasticity to the muscles. Hence it is a necessary element in diet for athletes and manual workers. Barley, spinach, and walnuts, have the highest percentages of this element.

Iron is essential for the processes of combustion, and is found in the hæmoglobin of the red blood corpuscles. It unites with the oxygen in the lungs, and carries it to all the tissues of the body. A deficiency of iron in the blood is noticeable in such diseases as anæmia and chlorosis. Iron is found chiefly in spinach, lettuce, leeks, strawberries, and gooseberries.

Phosphorus, meaning "light bearer," is the most important food constituent for brain workers. Lecithin, the fatty substance of the brain and nerves, is a compound of fat and ammonium phosphate. Whole wheat, unpolished rice, almonds, and onions are rich in phosphorus.

Sulphur is a blood purifying element and controls the action of the phosphatic nerve substance. Those subject, therefore, to nerves should take more fresh vegetables in their diet, especially red cabbage, carrots, young nettles and cauliflower.

Silicon is found chiefly in the outer layers of plants, and in a similar sense goes to produce teeth, hair, and nails in the animal organism. It acts as an insulator, and has a powerful antiseptic action which protects the body from infectious diseases. White bread and polished rice have both been robbed of their silica by the milling and polishing processes.

Chlorine along with sodium are necessary for the formation of the saliva, gastric and

digestive juices. Sodium chloride is contained in the blood serum, and serves as a medium for conveying the magnetic and electric currents of the body. Chlorine is present largely in celery, cabbage, and to a great extent in fresh coconut.

Fluorine, which occurs chiefly as calcium fluoride, is found in the bones and enamel of the teeth. Both milk and vegetable foods contain this element.

Manganese has similar properties to iron in the blood, but, like fluorine, is only found in minute quantities in the ash of plants.

ENZYMES AND VITAMINES

Modern research in dietetics has discovered that there are certain food agents or accessories which perform a similar function to the organic salts in the processes of nutrition. Although not shown in the ordinary food analysis, they may nevertheless be classed as substances which are natural ferments both in the plant and animal organism.

Enzymes convert starchy foodstuffs into sugar, thus rendering it fit for easy assimilation and digestion. The enzymes amylase, cellulase, are found in the wheat grain, and a similar ferment is found in the ptyalin of the saliva. The substances formed by the actions of food enzymes are called "vitamines." Hence if the enzymes of wheat are removed in

the milling of white flour and polished rice no vitamins can be formed.

Whilst nothing is known as to the actual composition of vitamins, we know a great deal about their nature and distribution. Three classes of vitamins exist which are provisionally named :—(1) fat soluble A, (2) water soluble B, and (3) anti-scorbutic factors. Rickets is related to the absence of the first ; beri-beri or neuritis to the second ; and the third factor prevents scurvy.

In cereals both A and B factors are found in the germ and to a smaller extent in the bran. White bread is therefore entirely deficient in vitamins. Fresh cut cabbage is rich in the anti-scorbutic factors, but cooking much reduces their qualities and long boiling destroys them. Lemon and orange juice contain also the anti-scorbutic vitamin.

Whilst all natural foods contain two and generally the three vitamins, it is claimed that the animal organism is incapable of producing them. For instance, the vitamins found in butter, milk, eggs, and meat are wholly derived from vegetable foods. Butter and fats contain only the fat soluble A, so that from this standpoint it matters little whether we use margarine made from vegetable or animal sources. The main point is to see that one's daily dietary includes a liberal supply of uncooked fruits and vegetables.

Composition of Mineral Matter
per cent. as given in the fifth column

	I	II	III	IV	V	ACID NEUTRALISING				Neutral	ACID FORMING			
	Water	Protein (Albumen)	Fat	Carbohydrates (Sugar, Starch)	Mineral Matter	Potassium (K ₂ O)	Sodium (Na ₂ O)	Calcium (CaO)	Magnesium (MgO)	Iron (Fe ₂ O ₃)	Phosphorus (P ₂ O ₅)	Sulphur (SO ₂)	Silicon (SiO ₂)	Chlorine (Cl)
Human Milk	87.02	2.36	3.94	6.2	0.45	33.8	9.1	16.7	2.1	0.2	22.6	0.9	0.02	18.3
Cow's Milk	87.2	3.55	3.7	4.8	0.71	24.6	9.7	22.05	3.05	0.5	28.4	0.3	0.04	14.2
Meat (Average)	72.0	20.00	5.0	0.4	1.10	41.3	3.6	2.8	3.21	0.7	42.5	1.6	1.1	3.8
Eggs	73.7	12.5	12.1	0.5	1.10	17.4	22.9	10.9	1.1	0.4	37.6	0.3	0.3	9.0
Seafish	81.0	17.1	0.3	..	1.60	21.8	14.9	15.2	3.9	..	38.1	..	..	11.4
FRUITS														
Apples	84.8	0.4	..	13.0	0.50	35.7	26.1	4.10	8.7	1.4	13.7	6.10	4.3	..
Strawberries	87.7	0.5	..	7.7	0.80	21.10	28.5	14.20	..	5.9	13.8	3.15	12.0	1.70
Gooseberries	85.7	0.5	..	8.4	0.40	38.6	9.9	12.2	5.85	4.5	19.7	5.9	2.6	0.75
Grapes	78.2	0.6	..	16.3	0.50	56.2	1.4	10.8	4.2	0.4	15.6	5.6	2.7	1.52
Dried Figs	31.2	1.3	1.45	65.9	2.86	28.3	26.2	18.9	9.2	1.4	1.3	6.7	5.9	2.7

NUTS													
Walnuts ..	4.7	16.4	62.9	7.9	2.03	31.1	2.2	8.6	13.0	1.3	43.7	..	..
Chestnuts ..	7.3	10.8	2.9	73.8	3.00	56.7	7.1	3.8	7.4	0.14	18.1	3.8	1.5
(Dried)	6.0	23.5	53.0	7.8	3.10	28.0	0.2	8.8	17.6	0.5	43.6	0.3	0.5
Almonds ..	46.6	5.5	35.9	8.1	1.00	43.9	8.4	4.6	9.4	..	17.0	5.0	..
Coconuts ..													13.4
VEGETABLES													
Spinach ..	88.5	3.5	0.6	4.4	2.10	16.6	35.3	11.9	6.4	3.3	10.2	6.9	4.5
Savoy Cbge.	87.1	3.3	0.7	6.0	1.64	27.5	10.2	21.4	3.6	1.7	14.7	8.2	4.7
Carlinflower	90.8	2.4	.34	4.5	.83	44.3	5.8	5.5	3.6	1.0	20.2	13.0	3.7
Cucumber	95.6	1.2	0.1	2.3	.44	41.2	10.0	7.3	4.1	1.4	20.0	6.9	8.0
Onions ..	76.0	1.7	0.1	10.8	0.70	34.0	2.5	22.9	4.6	2.3	17.3	5.6	8.5
Carrots ..	87.0	1.0	0.2	9.4	0.90	36.9	21.2	11.3	4.4	1.0	12.8	36.4	2.4
Lettuce ..	94.3	1.4	0.3	2.2	1.03	37.6	7.5	14.7	6.2	5.2	9.2	3.8	8.1
Potatoes ..	75.0	2.0	0.1	21.0	1.10	60.10	3.0	2.6	4.9	1.1	16.9	6.5	2.0
Leek ..	87.6	2.8	.29	6.5	1.24	30.7	14.1	10.3	2.9	7.6	16.6	7.3	7.3
Celery ..	84.0	1.4	.39	11.8	.84	43.1	—	13.1	5.8	1.4	12.8	5.5	3.8
LEGUMES..													
Lentils ..	12.3	25.7	1.9	53.3	3.04	34.8	13.5	6.3	2.5	2.0	36.3	..	4.6
Peas ..	15.0	22.3	1.8	52.4	2.58	43.1	1.0	4.8	8.0	0.8	35.9	3.4	0.9
Beans ..	14.7	24.3	1.6	49.0	3.26	41.5	1.1	5.0	7.1	-0.5	38.9	3.4	0.6
CEREALS													
Whole Wheat	13.4	13.6	1.9	69.1	2.00	31.2	2.1	3.2	12.1	1.3	47.2	0.4	2.0
Barley ..	13.8	11.1	2.2	64.9	2.70	16.3	4.1	0.7	12.5	1.7	32.8	3.0	28.7
Oats ..	12.4	10.4	5.2	57.8	3.02	17.9	1.7	3.6	7.1	1.2	25.6	1.8	39.2
Rice													0.9
(Unpolished)	13.1	7.8	0.8	76.5	1.00	25.0	4.2	3.7	11.1	1.4	53.7	0.5	2.6
													0.1

From Analyses by Konig, Wolff, etc.

A human body of 150 lbs. consists of about 90 lbs. oxygen, 35 lbs. of carbon, 15 lbs. of hydrogen, $2\frac{3}{4}$ lbs. of nitrogen, $3\frac{3}{4}$ lbs. of calcium, $1\frac{1}{2}$ lbs. of phosphorus, $1\frac{1}{2}$ lbs. of chlorine, $3\frac{1}{2}$ oz. of sulphur, $3\frac{1}{2}$ oz. of fluorine, 3 oz. of potassium, $2\frac{1}{2}$ oz. of sodium, 2 oz. of magnesium, $1\frac{1}{2}$ oz. of iron, 1 oz. of silicon, $\frac{1}{2}$ oz. of manganese.

PHYSIOLOGY OF DIGESTION

The change which takes place in the digestion of food is practically the same whether the food comes from the vegetable or animal kingdom. First of all, the food materials are acted upon by the saliva of the mouth, and then by the various digestive juices in the stomach and intestines. When work is done in the body the cells composing the tissues undergo oxidation, and disunite their complex substances into simpler compounds.

The digestion of starch begins in the mouth by chewing and the action of a ferment called ptyalin which converts the starch into sugar. The oxygen of the air breathed in by the lungs unites with the carbon in our food, and is thrown off as carbonic acid chiefly by the lungs and skin. Insufficient pure air, we know, leads to consumption, etc., but it is equally necessary to know that the absorption of oxygen by the lungs depends to a great extent upon the presence of iron in the blood.

The elimination of the carbonic acid is regulated by the element sodium, which as sodium carbonate and sodium phosphate circulate in the blood stream until they reach the lungs, where the sodium separates and allows the carbonic acid to be expelled into the air.

Vigorous mastication of our food is thus beneficial not only to our teeth, but promotes an increased flow of the saliva which sets in order the whole processes of digestion. Truly, if we see well to the first stage of digestion, nature will see to the rest.

All proteids, whether vegetable or animal, must be transformed into a diffusible liquid through first being acted upon by the gastric juice, which contains a ferment called pepsin and hydrochloric acid. The gastric juice acts only upon the proteids, and is secreted until it has neutralised the alkalinity of the saliva. The entire liquid contents of the stomach are then passed on to the small intestine, where they are dealt with by the pancreatic juice, which acts upon both the proteids and the starch left from the salivary digestion.

Chyle is the name given to the liquid food absorbed by the small intestine, from which it enters into the blood and is carried to all parts of the body. Each type of nutriment goes to its respective tissue, where it awaits utilisation. The proteids go directly into

the blood, and the starches and sugars go to the liver to be stored up in the form of glycogen. Fats enter into the circulation at once by way of the thoracic duct, and are carried chiefly to the bone and nerve tissues.

The changes which take place in the digestion of proteids are considerably affected by the nature of our diet. The nitrogen compounds break down into waste products, chiefly urea and uric acid, which are excreted by the kidneys. The latter acid is almost insoluble in water, and requires chiefly the alkaline element sodium to dissolve this acid as urate of sodium. If, however, the food eaten is deficient in sodium or too rich in nitrogen, there will be a surplus amount of uric acid formed which will cause harmful precipitations in the body. Hence we have such diseases as rheumatism, gout, gravel, and kidney diseases.

¹In carnivorous animals, the dog and cat, the liver is able to destroy most of the uric acid formed, but as man has not this power it shows clearly that he is not adapted by nature to eat butcher meat, which besides being a concentrated proteid always contains the waste poisons (creatine, leucomaine, uric acid, etc.) found in all animal tissues. To be plain, then, the great hygienic error in eating fleshmeat is that the body gets an extra supply of waste matter, which accumulates in the

¹See researches by Schur and Bureau.

system, owing to the body having quite sufficient work to do in expelling its own urea, uric acid, etc. Man ought to select his proteid food from nuts, legumes, etc., free from harmful waste poisons, and to add a plentiful supply of fresh vegetables rich in alkaline mineral elements which neutralise the normal uric acid formed, and cause it to be excreted without difficulty.

When food reaches the colon or large intestine, any remaining nutriment is readily absorbed, especially liquid food, as the ingredients are pressed along the intestinal canal. The colon is also the receptacle for the food residue, and requires a certain amount of indigestible material in our diet to stimulate the peristaltic motion and ensure a regular or daily motion of the bowels.

Food, we must remember is never wholly digested, and should be of sufficient bulk to give the necessary work to the digestive organs. It is, indeed, a very common error to imagine that we should always choose the most easily digested food. The muscles of the digestive apparatus would soon lose their vigour if we were to take our food in its separate constituents of proteid, starch, etc. As the process, too, of digestion is largely mechanical, we must exercise regularly in the fresh air, practising deep breathing so as to promote the healthy flow of the digestive fluids and the oxidation of the tissues.

THE EVOLUTION OF DIET

We have shown that science places man amongst the fruit-eating animals, and that flesh-eating is a hygienic error. The question remains, why, how and when has man departed from his original dietary?

Most evolutionists are agreed that man originally inhabited a hot country, where he could obtain more easily his natural food than in cold climates. As he migrated north, several important changes took place in his mode of living. The glacial period, or age of ice, separated mankind into distinct races, and forced man to resort to all kinds of food through long periods of famine. Hunting and killing animals for food then became the law of necessity for those cut off from tropical regions. If we allow twenty or thirty thousand years ago as being the date of the glacial period, we must consider requisite several hundred thousand years prior for man's normal type as a frugivorous being.

As civilisation appeared with the cultivation of the soil and the invention of fire, man learned how to grow and cook his food. The instinct for a natural fruit diet reasserted itself, for man felt he was more a fruit eater than a grain eater, and thus planted fruit trees wherever he went. The Biblical story of the Garden of Eden is thus seen to have a historical basis, and the prophetic mind may

foresee that the meaning of these long years of laborious agriculture is to enable man to return to his early Paradise minus the sufferings of previous ages.

The idea that food is determined solely by climate will not bear the light of investigation. If the Eskimos have blubber to keep them warm, why have the Africans such an abundance of oil? The truth about the Eskimo is that he lives upon animal fat simply because he has no choice in the matter. His diet is much more suitable for a polar bear than a fruit-eating human being, and probably if he knew better he would migrate to warmer regions.

It is notable, too, that where we find the diet to consist almost exclusively of animal food, as in Iceland, diseases such as scurvy and leprosy are quite common. In striking contrast we have the case of the inhabitants of the Ladrone Islands, discovered by the Spaniards in 1620. The Ladronians lived in close contact with nature, and had never seen fire nor knew anything about civilised conditions. Fruits, nuts, and vegetables in their uncooked form were their only means of subsistence. They were all a powerfully built race and could perform astonishing feats of strength. Disease was unknown to them, and many amongst them were centenarians. Such facts go to prove that man in his migrations must not forsake his natural dietary. This, no

doubt, was the original intention of planting fruit trees in the north, or wherever man wandered in the days when probably the tropical regions were overpopulated. At any rate we know that nut trees once grew to a far greater extent in Britain than at present, and it was during the wars of Napoleon that many of our finest walnut trees were cut down to make gun stocks. Everywhere and always the same, disease, flesh-eating, and the war spirit go hand in hand, and are still the greatest maladies of the human race.

RATIONAL NUTRITION

The choice of a suitable dietary is a matter upon which most people bestow very little consideration, notwithstanding that there are laws of nutrition which must be as implicitly obeyed as any other laws of nature or physical science. The farmer usually finds it pays to study the feeding of his live stock, but seldom do we notice anything like the same attention given to the rearing of healthy human beings. As a nation we seriously err in this respect, and evidently prefer to trust to custom and convention rather than use our rational instincts to guide us in the wise selection of the daily regimen.

In the realm of nature it is the function of the vegetable kingdom to build up the alimentary organic cell. But the plant must

borrow first its materials from the mineral kingdom, and so change them that they can become assimilated by animals. During the life growth of the animal the alimentary cell becomes destroyed again, and is returned to the mineral kingdom from which it was originally composed. This constitutes the natural cycle of life, and throws much light upon the normal processes of nutrition.

For instance, we now know that all living bodies must assimilate their food in an organised form, and hence we see the folly of our eating a coal tar product such as saccharin, or even the ordinary use of sodium chloride or table salt. The same objection applies also to the use of the mineral drugs, iron, etc., which the body makes a mighty effort to expel, and during which expulsion produces symptoms which are regarded as a cure by the modern medicine man.

There is nothing, however, in the above statement to forbid the use of flesh as food, but in the case of man we have already shown that meat-eating is a physiological error. Those who contend that we should eat flesh-meat because it is likeliest to our own composition should remember that this argument pushed to its logical conclusion might be used to justify cannibalism. But as a matter of fact, there is no justification of flesh-eating by a frugivorous human being, who should prefer to go direct to nature for his food

and be nourished on the first-fruits of the earth.

Again it is often urged that animals were meant for food, and that they would soon overrun the earth if we did not eat them. Such statements, however, are only surface thoughts, and are based upon man's too great importance of himself in relation to the rest of the universè. We are apt to forget that man's appearance upon this planet is only of recent origin as compared with the great period of evolution, and that many other animals lived their day long before the advent of the so-called beneficial influence of mankind. But even granting that man is the highest creature in existence, he must not ignore the rights of the lower creation. It should rather be his duty to guide and guard them so that he may be worthy of his honoured place.

The idea that animals would soon overrun the earth if it were not for man's accommodating stomach, would certainly be a most serious objection to food reform, but the facts of the case are very much otherwise. The truth is, only a very small proportion of the animals used for food are bred in this country, the great majority coming from the cattle ranches of America, where they are purposely bred for meat-eating. Once we stop breeding animals for food, nature will re-adjust the balance, if necessary with man's

assistance. Besides, there are other animals not used for food, such as the horse, donkey, etc.—at least commonly—and they do not multiply too fast. As to rabbits in Australia, we must remember that the rabbit was taken there, and hence this is not a valid objection.

As to the further objection that man possesses canine teeth, these are found also in the fruit-eating ape, and, in accordance with evolution, have no more to do with meat-eating than the gill-like slits in the embryo of man have to do with fishing rods.

If, then, we leave off flesh meat, we need only to include in our dietary such foods as lentils or nuts to get a sufficient quantity of proteid to satisfy the demands of the body. The study of the food chart in these pages will show that butcher-meat contains 20 per cent. of proteid against 25.7 in lentils and 23.5 in almonds. Besides, remember, that in every pound of flesh meat purchased you pay for three-quarters of a pound in weight of water, a fact which ought to be widely known, especially amongst the poor and working classes.

It is a mistake, however, to imagine that food should be chosen solely for its quantity of proteids, for a comparatively small quantity of proteid is ample to meet the requirements of the body. According to the researches of Voit and Chittenden, a maximum

32 DIET AND GOOD HEALTH

of 2 to 3 ounces of proteid daily is held to be sufficient.

Nuts are the natural proteid food of man, and are a very pure source of nourishment. Besides the common varieties such as walnuts, brazils, hazels, chestnuts, and coconuts, we have also pine kernels, cashews, pecans, pistachios, and many others. Peanuts (monkey nuts) really belong to the pulses, and if eaten along with a few dates, form a cheap and very sustaining meal. The pine kernel is the most nutritious and easily digested nut, but varies considerably in its proteid ration. The coconut contains the least quantity of flesh-forming matter, besides being very difficult of digestion.

Some people consider that nuts are too indigestible to form a regular meal, but this is usually because they have partaken of nuts on some festive occasion when probably their appetites have already been well satisfied. The experience of most food reformers is that nuts are quite easily digested if chewed thoroughly and taken at the beginning of a meal. Grated nuts are excellent for those having defective teeth, and a nut mill for this purpose can be obtained at a small cost from Health Food Stores.

Lentils and the pulse foods, peas, beans, have been called "the poor man's beef." They are all highly nutritious, cost much less than other proteid foods, and should be used

especially by those engaged in manual labour. The red or Egyptian lentil is used chiefly in soups, but the brown or German lentil has a much finer flavour. The latter, too, can be quite easily grown in this country in warm sunny situations. Léntils are more easily assimilated than peas or beans, but as all these foods are very rich in nitrogen they should be eaten sparingly, especially by those subject to rheumatism or uric acid troubles. Flatulence is caused by cooking pulse foods in too much water, and omitting to eat them along with green salad vegetables.

Cheese and Eggs are both very nourishing proteid foods, and may be used as meat substitutes in adopting a non-flesh diet. Cheese should be grated and eaten raw to ensure easy digestion. It is a splendid food for manual workers in the open air. Eggs contain no purin bodies, but their too liberal use is liable to cause uric acid troubles.

Fruit is man's natural carbonaceous food, and instead of being a luxury is a very necessary article of diet. The carbon in fruit is in the form of grape or fruit sugar, which can be very easily assimilated. The acid or flavour fruits such as gooseberries, strawberries, apples, etc., are valuable for keeping the blood cool in warm weather, but are not so nourishing as the food fruits, bananas, dates, figs, etc.

An exclusive fruit and nut diet is more

generally adapted for a warm climate on account of its richness in water and easy assimilation. But a certain quantity of fruit is necessary even in a cold climate for its stimulating or oxygenising acids. Citric, malic, and other fruit acids are usually combined with potash bases which in the process of digestion exert an alkaline action on the blood. Lemons, limes, oranges, etc., may be used, therefore, with benefit in the cure of scurvy or skin troubles. Bananas are not so nourishing as are generally supposed, and should always be preferred in their sun-dried or naturally ripened condition. Dates, raisins, and figs are all very nutritious, and if eaten along with a few nuts form a sustaining meal for cyclists, etc.

Sugar as it exists in ripe fruits is of a very different order from the artificially extracted cane and beet sugars so prevalently used in this country. Ordinary refined shop sugar consists of the three elements oxygen, hydrogen, and carbon, whereas fruit sugars are combined with albumen, alkaline salts, and other elements in an organised form. The free use of chemically manufactured sugars has a decidedly irritant effect upon the mucous lining of the stomach, and is a common cause of acid dyspepsia.

Cane or immature sap sugars found in the stem of plants are the natural food of cows and herbivorous animals which have a special

stomach to deal with these sugars. Glucose obtained by treating maize, etc., with vitriol may contain arsenic, and is often used in the manufacture of sweets and jam making. Saccharin is a coal tar product which is forbidden to be used in food products both in America and France.

Food reformers will prefer to get their sugars in the living state, as they are found in the sun-ripened fruits and root vegetables. Those who experience difficulty in getting away from the sugar habit should restrict their supplies to the genuine brown Demerara and Barbados sugars, which are less chemically refined than the white bleached product. Honey and black treacle are better for children who are fond of sweetmeats.

Cereals, the chief of which is wheat, have been used almost universally since very primitive times. Considerable discussion has arisen in recent years as to the value of white versus wholemeal flour, but it appears to have required a world shortage of wheat to convince our authorities that bread made from denuded white flour is not so nutritious as "household bread," which according to Wilkes' Encyclopædia, 1810, is stated to be that made from the whole grain. The milling away of the bran and mineral salts is responsible for the awful prevalence of constipation and decayed teeth in the present generation. To grind the wheat berry and take

away not only the germ but the precious vitamins is to impoverish the flour of its most essential constituents, and shows our modern commercial ignorance of food values. Good bread should be made of finely ground wholemeal, to pass through an 18-mesh sieve, so that its valuable nutriment can easily be extracted by the digestive juices.

Oatmeal contains an alkaloid called avenin, which has a heating effect upon the blood of some persons. It is a splendid body-building food for growing children, and best eaten in the form of bannocks or oat cakes. Barley is richer in fat and mineral elements than wheat, and was once almost a staple article of diet in this country. Deficient in gluten **like oats** it does not make a nice loaf, but **barley** flour can be made into thin delicious scones.

Rice is the staple food of the East, and is not so nourishing as wheat or oatmeal. It contains a high percentage of soda, and is a splendid food for kidney troubles. Only the unpolished rice should be used, as "beri-beri," a form of neuritis, is now admitted to be due to the use of the ordinary polished rice.

Butter or fat is a very important element in diet, as it is so quickly absorbed into the blood stream, and does not need to be carried to the liver like the starches and sugars. Margarine owes its origin to a French chemist called Megè-Mouries who discovered how to make a

substitute for butter from beef fat during the Franco-Russian War of 1870. Cheap margarines are often made from very inferior animal fats, and preserved with chemicals. Most of the nut margarines are blends of dairy butter and neutralised coconut fat, and if free from preservatives or not over-salted are quite wholesome.

The delicious nut butters now on the market are manufactured from coconut fat, and can be had flavoured with almond, brazil, cashew, hazel, and walnut cream. They keep much longer than dairy butter, and can be had in an excellent form for cooking purposes. Besides being practically free from water, nut butters are pure fats which contain a considerable percentage of proteid, and are therefore foods of a high order.

In some countries olive and nut oil are used as substitutes for fat. Salad oil should be made either from pure nuts or the first pressing of the olives.

Olive oil is commonly adulterated with cotton seed and ground nut oil, which is eventually sold as "Lucca Oil." Dried or ripe black olives are preferable to olive oil, which is deficient in organic salts. The former are rich in potash, sodium, and calcium, and contain about 75 per cent. oil, thus making it an ideal food for consumptives. Olive oil should be kept in a cool, dark place in summer, and in a warm temperature, about 60 degrees, in winter.

Vegetables should be used freely at all times in this climate for they keep the blood pure and balanced, besides helping to digest other foods. They are richest in mineral elements, probably because they grow nearest the soil. The fresh succulent green vegetables, lettuce, spinach, cabbage, etc., are invaluable in cases of anæmia, rheumatism and acid troubles. Beetroot, carrot, turnip, and parsnip, being rich in sugar may take the place of the less acid fruits. Tomatoes contain citric and malic acids and are excellent for liver complaints. Potatoes are a cheap source of nutriment, and a much more valuable food than has been hitherto supposed, so writes Dr. Hindhede, the great Danish authority.

The starch in potatoes is very easily digested, and is said to prevent the fermentation of other foods in the intestine. Potatoes should either be baked or boiled in their skins, as the organic potash salts lie just immediately under the skin, and these are removed in the process of peeling. Rheumatic subjects will find potatoes cooked in this way help to dissolve the uric acid poison.

On no account must the water in which potatoes or vegetables are cooked be thrown away, as this contains the food salts which we wish to conserve. It is preferable to eat salad vegetables raw, for cooking destroys the natural combination of the mineral salts. Even the interior of cabbage can be relished

raw, and, contrary to what is generally supposed, the late Albert Broadbent, F.R.H.S., writes: "Ordinary boiled cabbage requires five hours for digestion, whereas only two and a half hours would be required for its digestion if it were eaten raw."

Condiments. The regular use of salt, pepper, mustard, vinegar, etc., conduces to over-eating, and irritates the mucous lining of the intestinal tract. Table salt or sodium chloride may be used very sparingly in cooking, but it is better to educate our palates to the natural flavours of cooked and uncooked food. Professor Bunge has advanced an interesting theory that because vegetable foods contain an excess of potassium salts, we need a moderate consumption of table salt. He contends that these potassium salts unite with the sodium chloride of the blood to form potassium chloride, which is quickly excreted by the kidneys. This causes the blood to become deficient in sodium chloride. Dr. Lahmann refutes these statements by pointing out that we need not choose vegetable foods too rich in potash, and that we can get all the sodium chloride we require in either raw or conservatively cooked green vegetables. Besides, the majority of animals never taste salt, and we know that a salt free diet has a marked effect in the cure of catarrh, dropsy, and other ailments. Vinegar is really a product of fermentation which has more

harmful effects upon the tissues than even alcohol. It hinders the formation of blood, and retards digestion. A good substitute for salad dressings is found in lemon or lime juice.

Liquids. Tea and coffee are both narcotic stimulants, and cannot be classed as foods in any sense of the term. Taken in excess they cause indigestion, headaches, constipation, sleeplessness, and aggravate gout and rheumatism. Some imagine that the only harmful ingredient in tea and coffee is the tannin which acts as an astringent, whereas both contain alkaloid poisons in the form of theine or caffeine. These stimulants affect the heart and nervous system, although their results may not be seen until the body has become a slave to their use. China tea is certainly less harmful than Indian or Ceylon tea, according to Dr. Robert Hutchison—"it is poorer in tannic acid than other kinds and less apt to cause acidity, though just as bad for the nerves." Only the best blends of tea should be purchased, as the cheaper varieties contain the coarse leaves of the tea plant. An infusion of freshly made weak tea has an exhilarating effect upon the body, and favours the secretion of the kidneys if not taken to excess.

Cocoa contains the milder alkaloid theobromine, but it is rich in fats and proteids. It is a nourishing food beverage, and it is

much better for children than tea or coffee. Pleasing health drinks can be made from the cocoa nib or cocoa shell.

Those who wish to abstain from these drinks, but who feel the need for warm liquids should try Postum, a compound made from wheat and molasses. A fair substitute for coffee can be made from acorns, as popularly used in Germany. Fig and Cereal coffees are also forms of palatable health drinks. Pure soft spring water is by far the best thirst quencher, and is all the stimulant a healthy body requires. Water acts as a solvent on the waste tissues, and should be sipped slowly to get its best effects.

Artificial mineral waters saturate the blood with an excess of carbonic acid, and the chief value of Spa and other so-called curative waters lies in the fact that only water is chiefly imbibed at these health resorts. The use of alcoholic drinks may produce a temporary sense of well-being, but the fact that this may lead to a state of intoxication is sufficient evidence that alcohol is simply a poisonous stimulant which shortens life.

THE QUESTION OF CLIMATE

The kind and amount of food we require depends, to a great extent, on the climate in which we live. The climate is determined to a great extent by the temperature, mois-

ture and pressure of the atmosphere ; or, in other words, by the amount of heat and the relative proportions of carbon and hydrogen in the air. Now, the natural climate of man should be both warm and dry, and his natural food, nuts, fruits and vegetables. Here we note that the nitrogen is in its purest form and only associated with a small proportion of starch. The carbon in the fruits is in the form of grape or fruit sugar, which can be very easily assimilated. The excretion of carbonic acid does not take place too quickly by the lungs owing to the atmosphere containing only the necessary amount of oxygen. Then, again, there is plenty of hydrogen in this diet, in the form of nut fats, which are necessary where the climate is hot and dry and the skin active in its elimination of moisture. As to the mineral elements, only a small quantity of leaf vegetable is necessary to neutralise the acids, as the reaction of fruit is alkaline. This diet we see, then, favours a life of ease in the tropics and is quite in keeping with the gospel of leisure.

Let us now consider the case of a very cold, moist climate, where food conditions should be reversed. Generally speaking, we need more food in a cold climate than in a warm one, because we need to work harder in order to maintain the heat of the body. This means that more nitrogenous food must be eaten to replace the worn-out tissues caused by the

work done. We need more carbon in our food in cold climates because of the energy required to create heat, and also because the body takes in more oxygen in cold weather than in warm weather. The fire burns brighter in winter for the same reason that we feel more active on a cold day. The reduction in temperature of the atmosphere has reduced its volume, so that there is an increased amount of oxygen in the air. This means that the carbon in our food becomes so quickly oxidised that a concentrated carbonaceous food is essential. This we find in the cereals, such as wheat, rice, and oats.

We need less fat or oil in a cold, moist climate than in a dry, warm one. This, of course, is contrary to supposed facts, but the proof of the matter is plain. In a moist climate there is more hydrogen in the air, therefore it will be difficult to throw off hydrogen by the skin as moisture owing to the humidity of the atmosphere. If we take too much hydrogen as food in moist climates we simply increase the venosity of the blood by retarding the excretion of waste products.

If, however, the climate is both cold and dry, then we can take more hydrogen in our food, provided we take sufficient exercise to keep the skin active.

There must be a copious supply of vegetables as food in cold countries, or else acid diseases, such as rheumatism, scurvy or

eczema will result. This is due largely to the following reasons. The excess of nitrogen which we require in cold climates means that there will be an excess of uric acid to be excreted by the kidneys. The same applies to the carbonic acid of the starch thrown off by the lungs and skin, which shows that the tissues will be more acid in cold climates than in warm ones.

It is a curious fact in this respect that the blood is more acid in the morning, and this is probably the reason why we feel warmer during the latter part of the day. Now, the excretion of acids depends upon the presence of alkalies in our food. These we find as organic salts in salad and root vegetables, without which we cannot maintain healthy vigour.

An objection may be raised here as to the alkaline salts having a caustic effect on the delicate membranes of the body. Miss Alice Braithwaite states this well in *Balance in Diet*, and advocates a neutral diet of starch. We must remember, however, that even starch requires the alkali soda to assist its oxidation, so that it is essential to take vegetables in our food. It is the free use of inorganic mineral salts that harms the tissues of the body. Besides, there is little fear of most people making this mistake, as already their food is too acid.

The effect of the atmospheric pressure on the body has much to do in regulating the

quantity of food necessary for the body. Where the barometric pressure is low, as in high altitudes, more carbonaceous food must be eaten. Prof. Mosso, the celebrated Italian, explains this clearly when dealing with mountain sickness. This is due, not to a lack of oxygen in the air, but to the too rapid elimination of carbonic acid owing to the absence of the normal sea-level pressure of the atmosphere.

FOOD HABITS OF NATIONS

As to the diet of nations, much could be written to show how unscientific they are in their food habits. Considerations of custom, poverty and religion have usually been the chief factors in determining diet. We note this in the meagre fare of the Hindoo, Irish and most peasantry. Where wages are good the diet becomes more varied, but often, unfortunately, to the detriment of the peasant. Those wishing to pursue this point further should study H. Buckle's admirable *History of Civilisation in England*. Religion has done much to purify the diet in Eastern lands, although chiefly from humane and ascetic reasons. We are a long way behind other nations in this respect. The Jew will not eat the pig, neither will the Buddhist nor the Mohammedan, but the so-called Christian will, like the pig, eat almost anything.

In a book called *Strength and Diet*, by Hon. R. Russell, we have a splendid summary of the diets of most nations. Rice seems to be the staple food in such Eastern countries as India, China, and Japan. As a food it is deficient in nitrogen, and contains an excess of starch, which makes it unsuitable in a very warm climate. This means that the Hindoo must work hard to digest the starch, or else his tissues will be surcharged with carbonic acid. It would be better, then, for the Hindoo to get his carbon in the more easily digested form of fruits. The Japanese or Chinese who add fish or Soya beans to their rice are certainly living upon a more balanced dietary. Rice, however, is valuable as a neutral food, and is the least taxing to the excretory organs. It contains a great deal of soda and not too much potash, hence is a splendid diet for diseases of the kidney.

With regard to the Eskimo and the 20 lbs. of flesh or oil which he is known to consume in a day, this is a degenerate dietary. He truly lives to eat, and can never get sufficient exercise to excrete the fats, owing to the action of the low temperature on his skin. Thus he has become a corpulent, oily skinned creature, who ages early, and who is subject to all kinds of skin diseases. To quote the case of the Eskimo, therefore, is a very poor defence of flesh-eating, for no one in these islands intends to adopt a diet of whale oil.

He would prefer olive oil, or some of the purer nut oils. Besides, in this respect it is strange that cannibalism is chiefly found near the equator, so that meat eaters cannot have it both ways. The truth, therefore, about the Eskimo is that his diet is based upon dire necessity, and has little to commend it to a fruit-eating human being. He requires more starchy food, and a pure nut oil to keep him warm, besides a periodic visit to the equator.

With regard to the diet of European nations we find that they too have erred considerably in their migrated diet. The science of navigation has advanced so rapidly that food is carried now to all parts of the world, with the result that the diet of most Western nations has been altered considerably. Apart from the social influences which have followed this change, it would be wiser to consider seriously if nations should alter their diet without obedience to the laws of dietetics.

Surely it does not follow that because sugar can be dumped down at our ports sugar should be eaten! By dieting ourselves in such an unscrupulous manner we are only making the problems of diet more complex to solve. Scarcely a man in Britain to-day could give you reasons for the foods he eats. Probably he would reply, with reference to butcher-meat, that he likes it, but as some people like alcohol, and others poisonous

drugs, this is not a reasonable answer. My contention, therefore, is that we ought to study carefully the science of diet with special reference to climate.

THE RATIONAL DIET FOR BRITAIN

Now, in reviewing our diet in vogue at the present day, we note the free use of butcher-meat, milk, eggs, tea, sugar, white bread, and mineral salt. On analysis this diet contains purin poisons and is deficient in soda, lime and chlorine. Thus it is that we have uric acid diseases, such as rheumatism and lime starvation in the form of rickets and decayed teeth.

The popular idea with regard to butcher-meat is that it, above all other foods, contains the maximum of nourishment. The roast beef of old England is credited with almost marvellous powers of vitality and sustenance. Concurrently with these ideas, we have the steady increase in the consumption of meat, with statistics to show that during the last sixty years the British people have doubled their use of fleshmeat as food. In the Statistical Account of Scotland (1791-1799), an invaluable source of information on domestic matters, we are constantly reminded of the serious change in the food habits of the people. One minister, writing of his parish

in Forfarshire, says: "Formerly butcher-meat was seldom or never used by the lower or middling ranks except about Christmas, but now it is no unfrequent article at any season of the year." Alongside with this increased consumption of meat and a generally more luxurious manner of living, diseases of a malignant type have increased proportionately. Besides, it is a fact that whereas small-pox, cholera and other diseases have decreased with better sanitary conditions, on the other hand diseases more connected with the digestive system such as cancer, diabetes, rheumatism, appendicitis, etc., show a steady increase along with the greater use of flesh-meat.

The contention that butcher-meat is necessary as a heat-giving food in this climate is easily disproven by studying the food chart in these pages, which shows clearly that meat is a proteid or flesh-forming food. Inhabitants of cold countries rely more upon fat for heat producing and, strictly speaking, it is the starchy or sugary foods that allow heat to be liberated. Oatmeal and dates are ideal in this respect, and the same might be said of olive oil, nuts, and nut butter.

Those who are in doubt as to whether a non-flesh diet is sufficient for hard work would be well advised to study the food habits of peasant nations. The Highland Scotch and Irish peasantry are both good examples of

hardy and vigorous races, reared with little or no animal food.

As a matter of fact most people mistake the stimulating properties of flesh for real nutriment. This stimulation is due to the waste products (leukomain, creatin, urea) which arouse the reserve forces of the body instead of supplying actual vitality. These effete compounds or flesh bases are the chief ingredients found in beef tea, which instead of being a concentrated food drink is really a poisonous stimulant which puts a severe tax on the excretory organs. Liebig himself wrote in 1872, "neither tea nor extract of meat are nutritive in the ordinary sense." Professor Halliburton writes: "Instead of an ox in a tea-cup, the ox's urine in a tea-cup would be much nearer the fact, for the meat extract consists largely of products on the way to urea, which more nearly resemble in constitution the urine than they do the flesh of the ox."

Add to the above statements the fact that at least 50 per cent. of bovine animals slaughtered for food suffer from tuberculosis, and that flesh is affected with such communicable diseases to man as cancer, consumption, fever, intestinal worms, etc. Hence we see the gross error of meat eating, and the necessity for a drastic alteration in our food habits.

The diet most suitable for the people of this country should consist chiefly of nuts, fruits,

cereals, root and salad vegetables. We must remember, as in other lands, that the human race is naturally frugivorous. When we eat proteid foods, such as nuts or pulses, we must watch to include a due proportion of green vegetables, so as to prevent the blood from getting too acid. The lime found in vegetables will build good teeth and bone tissues. As to the use of salt, the study of the mineral elements in food will show that sodium chloride can be easily obtained from the vegetable kingdom. We need more starchy foods in winter such as oatmeal, wheatmeal or rice than in summer, for the same reason that we need more heat-producing foods in cold countries than in warm ones. Acid fruit in winter should be eaten sparingly, its place being taken more by the sweet fruits, figs, dates and raisins.

We need only a little fat in our moist climate and we can get this in its purest form in nuts or nut butter. Tea is simply a poisonous stimulant like coffee or alcohol. Cane sugar is a poor substitute for the natural sugar found in fruits and root vegetables.

Those who decide to adopt the above reformed dietary may feel weaker at first on giving up butcher-meat, but this is simply due to the stimulating properties of flesh foods being withdrawn. The experience of most food reformers is that health and strength increase in proportion as the diet

becomes purer and more natural. It must be noted here that food reform in itself is not sufficient, but must be combined with fresh air, exercise, and healthy living.

UNFIRED OR SUN-COOKED FOOD

A great change has taken place in recent years with regard to our knowledge of diet owing to the researches of modern investigators. A less mechanical theory of food has been established and is rapidly gaining ground. The body is no longer thought of as a machine or an engine only needing fuel to give out work, but more as a living organism with a vital force independent of food to supply energy. This life force flows through the body and by acting on the resistance offered by food generates heat and energy as a by-product. The effect of eating warm, cooked foods is to cause this flow to be abnormal, and the body becomes stimulated instead of nourished. In this way we weaken the assimilative properties of our digestive organs and render the body more susceptible to cold.

Cooking devitalises food (as is seen when we kill seeds by boiling them), and thus causes the sun energy or galama in the plant cells to be dissipated. The albuminous compounds or proteids become coagulated when subjected to heat, which renders them much more indigestible. According to Dr. Drews, cooked

starch is predigested or soluble starch which is too freely absorbed and oversaturates the blood stream. This in turn interferes with the arterial osmosis, and throws a great strain upon the organs of respiration.

Another effect of cooking is to mineralise partially the organic salts contained in food. In cooked foods the inorganic molecule is the result of chemical affinity, whereas the organic molecule is a loose association of the composing elements or atoms. Sodium, for instance, only requires a scalding temperature to break it up and cause it to unite with other elements. Chemists may analyze these food elements and find no chemical difference, but Nature has in her own mysterious way drawn a sharp line of demarcation between the mineral and vegetable kingdom.

In this connection warning must be given of the various so-called "nerve foods" on the market. Owing to the fact that we find phosphorus in the brain, iron in the blood, etc., we must not conclude that these minerals should be taken in a crude form. Incalculable injury has been done thus, for it is practically certain that minerals can only be assimilated in an organic form, that is, in the living tissues of vegetables, fruits, cereals, etc.

The use of milk and eggs is gradually discarded by those who view diet from a natural standpoint. Eggs were certainly meant to

produce chickens and not omelettes, and are in no sense a necessary article of diet. Cow's milk is a perfect food for a calf, but most assuredly not for a grown-up human being. Even in the case of an infant, cow's milk must be diluted, otherwise it will coagulate into too large curds in the stomach. The adult stomach is of a different shape and secretes more acid gastric juice, which makes the milk difficult to digest and induces constipation.

In defence of the use of milk and eggs by food reformers, it is rightly claimed that these are only transition foods until a more natural dietary can be adopted. All true reform is of the nature of a slow growth, and it is better to be inconsistent in the right than consistent in the wrong. Cow's milk is, indeed, a necessity at present for young children, but no substitute can ever take the place of a healthy mother's milk. In giving milk to infants it is a very common error to add refined sugar, which being entirely deficient in mineral matter is always injurious to health. It is worse still to add lime water, soda, salt, etc., all inorganic elements which act as irritants and poisons to the system.

The expectant mother should nourish her body as much as possible on fruits, nuts and vegetables, which will not only ensure an easy birth but an ample secretion of pure milk containing all the necessary tissue elements for the growth of a healthy child.

A strong argument in favour of the unfired diet is that raw foods are better suited for efficient mastication, and are, therefore, much easier dealt with by the digestive secretions. Children naturally have a preference for nuts and fruits, and the early development of the teeth shows that Nature insists upon a change from fluid to solid food. Just, too, as milk is relished in its uncooked state by the young babe, so should the growing child be fed upon raw vital foods, principally fruits at first, and then nuts and salad vegetables.

The economy effected by thorough chewing is much greater than generally understood. Not only is much less food required, but a considerable saving is effected in the vital energy of the body. The structure of the villi of the intestines clearly shows that the more we masticate our food, the easier it will be absorbed by the lacteals. Most people, however, consume not only far too much starchy food, but by eating it in the form of soft mush and washing it down with tea, etc., they directly cause food fermentation which leads to neuralgia, flatulence, and no end of diseases. Children especially should be taught at an early age, to chew their food thoroughly, and a good plan to encourage this health habit is to give them a few hard wheaten or whole-meal biscuits at the beginning of each meal. It is surprising how soon they get to like dry food, and a preference is given for its natural flavour.

The idea of eating unfired food will certainly appeal to most women folks, who have become far too much "house"-wives, and who are badly in need of a rest from all this boiling, frying, roasting, etc., in the preparation of food. Cooking, indeed, has caused more the slavery of the home than any other household duty. Even during the holidays, the mistress of the house has usually to devote so much time to cooking that she has little leisure left or is too tired to enjoy herself.

What folly it truly is, when outside the sun is shining and has done all the cooking that is really necessary! Man is truly the only animal that cooks his food, and he is the only animal that spoils it. Cook an apple and you destroy its sweet flavour, and you will need to add artificial sugar to make it palatable or go down.

It is only in the case of the starchy foods that cooking appears to be essential, but even this could be much simplified if the science of cooking were better understood. Potatoes baked in their skins in the oven do not require the same amount of preparation or attention as when they are peeled and boiled in the ordinary way. Many dishes, too, can be made appetising from choice selections of toasted flaked cereals, which are much more digestible than mushy porridge or milk puddings.

Woman then must no longer be the slave of the kitchen range, but the free partner in

man's higher progress to heights unknown. She must have more leisure to devote to the rearing of her children, and fuller opportunities to develop her own intellectual and artistic self-culture.

FOOD AND THE LAND PROBLEM

With a desire to live more upon his natural food, man will cease importing animals from abroad at great expense and often cruelty, and will prefer to grow food direct upon his native soil. This means that we must abolish our present inefficient system of land cultivation, which consists in feeding cattle chiefly instead of human beings. For many years now our soil has been going rapidly out of cultivation, showing a decrease of three-and-a-half millions of acres of arable land since 1857. When one adds to this the folly of pasturing animals, where land is so fertile, there seems to be something far wrong with our national economy.

Apart from health reasons for adopting a non-flesh diet, there are social and economic ones of great importance. Mr. A. D. Hall, M.A., F.R.S., says, "the production from a given area of land in the form of corn and other vegetable materials will in time of real need support about eight times as many men as will the meat obtainable from the same land." As a matter of fact, when man

58 DIET AND GOOD HEALTH

consumes animal food—a cow for instance—he is only consuming a portion of the food which the cow obtained from the grass, clover, turnip, etc. According to Professor Wood, a pig consumes 12 lbs. of dry grain to make 1 lb. of pork, a fowl's ration is 14.1; a sheep's 24.1; and a fat bullock's 64.1. The last is a serious indictment of our twentieth century's food economy and agricultural land policy.

Of course, all this has been pointed out by social reformers years ago, but it is only during the last few years that we have been forced to realise that we are practically a landless people.

“ Ill fares the land, to hastening ills a prey,
Where wealth accumulates and men
decay.”

One of the reasons for our agricultural decline is no doubt the great increase of our industrial manufactures. Some have even argued that we should remain chiefly a manufacturing nation, because of our splendid mercantile and overseas trade. But if other countries are able to expand their industries without hurting agriculture, surely we ought to be able to do likewise. Besides, we must ever remember that a nation's real wealth does not consist in large exports and imports, but rather in the number of healthy and happy human beings it possesses.

In order to feed our present population with wheat, our staple food, we must make the most of our land, as is done in other countries.

According to Mr. Prothero, "National security is not an impracticable dream. It is within our reach within the course of a few years, and it involves no great dislocation of other industries. We could obtain that result if we could add 8,000,000 acres of arable land to our existing area." At present our yearly requirements in wheat are about 34,000,000 quarters, and we have about 15,000,000 acres available wheat land out of our cultivable area of 33,000,000 acres. Supposing, therefore, we take an ordinary average of 4 quarters per acre, we ought to be able to grow 60,000,000 quarters, or nearly twice the quantity required for home consumption.

With regard to other foods that should be home-grown, a drastic change is needed in our national economy. We have become so accustomed to tinned and bottled foods that the natural product will scarcely appeal to our palates. One wonders, too, what the primitive inhabitants of these islands did without China tea, West India sugar, Egyptian lentils, African dates, Java rice, and Seville oranges. Of course, it is impossible to grow these foods in our climate, but this does not mean that we could not grow many other imported foods. English apples compare favourably with any other foreign kinds, and

such delicious fruits as plums, strawberries, gooseberries, etc., can easily be grown in Britain. The possibilities of growing more walnuts and hazel nuts are enormous, especially considering that unaided Nature has produced richer foods in the kernels of nuts than in the kernels of cultivated cereals. If, therefore, Nature unaided has accomplished so much, what may we expect when we start the scientific plant-breeding of our nut areas? Luther Burbank, the "Plant Wizard of America," as he has been called, says, "the vast possibilities of plant-breeding can hardly be estimated. It would not be difficult for one man to breed a new rye, wheat, barley, oats, or rice which would produce one grain more to each head, or a corn which would produce an extra kernel to each ear, another potato to each plant, or an apple, plum, orange, or nut to each tree." By a systematic method of selection and cross-breeding, he has developed or created a blackberry without thorns, an orange without pips, a gooseberry without hairs, and a walnut with a shell like paper. Similar astonishing results have been achieved by the fruit-growers of Britain in the budding and grafting of fruit trees, which bear a rich harvest in their second or third year's growth. A single acre in apples has been known to yield 40,000 pounds of marketable fruit in one year.

The cultivation of fruit does not require

the laborious tillage necessary to growing cereals, which further necessitates large and expensive machinery whose manipulation employs but a few skilled workers. Intensive fruit culture, on the other hand, needs only a few implements, and would provide interesting work with ample leisure for thousands of tired city workers. As a practical instance of a successful small fruit-grower on a 1 acre holding in Ayrshire, the following report appeared in the *Scottish Farmer*, May 8th, 1920. "He used to work in the pits before he got his holding, and, with the assistance of his wife and a young family, he is making a very comfortable whole-time living. The most part of the acre is devoted to strawberry cultivation, with a few raspberry canes. In his glass-houses the tomato plants, sweet-peas, etc., show evidence of careful and intelligent management. Not a small portion of the holder's activities is devoted to the raising of flowers in pots and beds, for which a ready market is obtained. Last year he put past £150 in the bank, after providing for wife and family." The report concludes by pointing out how the various smallholders in the district are keenly interested in one another's progress, and do their best by co-operative effort in making everything a success. Other instances might be quoted of successful fruit plantations in Perthshire, Lanarkshire, Kent, etc., especially where marketing is

organised on a co-operative basis as is done amongst the smallholders in Denmark. Science combined with co-operation would, indeed, soon work wonders in assisting man's efforts to live a natural, free, healthy life on the soil. But this demands first from each one of us to insist upon an easier access to his native land, and to foster a natural desire to dine upon the first-fruits of the earth rather than the tainted products of the slaughter house.

The question of manuring the soil is an important point here, in view of the fact that there would be fewer animals in a more cultivated Britain. But according to the teaching of Mr. Sampson Morgan, in his *New Soil Science* pamphlets, animal manure is not necessary. We may add nitrates to the soil by growing peas, beans, vetches, lupins, or clover, and supply it with humus by digging in Autumn sown crops of mustard, rape, etc. Artificial manures may be judiciously added to provide the necessary mineral elements, but not merely the orthodox lime, phosphorus, and potash, as the soil requires all the natural balance of plant foods such as iron, soda, sulphur, silica, fluorine, etc. The latter can be supplied best in the form of finely ground granite, sand, or any of the basic rocks.

Farming without animals has been carried on successfully in other countries, notably in

Sweden, and we have simply got to prove its practicability in this country. Animals, we must remember, do not add anything to the value of the food they eat, so that the manure produced from, say, a cow fed on grass is of less manurial value than the grass if directly applied to the soil. Thus the wise farmer feeds his cattle on imported cake or meal, and purchases artificials to maintain the fertility of his land. According to Wibberley, £1 spent on artificials is equal to £8 spent on feeding stuffs to increase soil fertility. Animals will therefore be much less used in the farming of the future, and just as the electric tramway superseded the horse tramway, so will the motor plough supersede the horse plough.

There is, however, no objection to the use of animal manure provided it is applied to the soil in a natural and non-stimulating manner. It has been the overloading of the soil with both animal and chemical manures that has caused so much plant disease. All animal waste—including human excreta—when properly used becomes a source of great wealth and health to the community. According to Dr. Poore in his *Rural Hygiene*, “the best return, agriculturally, is got by the immediate and daily application of fæces to the land.” The refuse should be placed only a few inches below the surface and covered lightly with soil. “There is no evidence, so

far as I am aware, that faeces (enteric or otherwise) treated in this way have ever been productive of harm." Thus we see the folly of polluting our rivers and coasts with valuable sewage which is badly needed for our already impoverished soil, which, we cannot be too often reminded, is the basis of our physical wealth.

If we would go to the root of our social and health problems we must live simpler and more natural lives. We cannot expect to be able to apply the principles of hygiene where people are overcrowded and have to act according to methods of expediency. But let every family have access to sufficient land for food growing and purposes of purification, and we shall have less reason to fear famine, and no need for our costly sanitation. Nature must be our guide in preference to our artificially-induced habits, which are responsible for so much physical disease, and have filled the world with sorrow and suffering.

The dawn of a new life is breaking upon the world. Some are already seeking a better way of living without all this social discord and terrible bloodshed. The peaceful cultivation of the soil, and reliance upon its fruits for nourishment, lie at the root of all true social reform, and will lead man away from the congested area of the city into the ideal life of the country, where he shall work

under glorious sunshine in the health-giving orchard of nature. Thus the foundations will be laid for a contented and prosperous peasantry, and a better opportunity given for the moral and spiritual improvement of the race.

HIGHER ISSUES

All minor aspects of food reform must converge in the building up of a more beautiful ideal of living. We must show that kinder and purer foods help us to be better men and women. Food must be studied not only for the sake of health or economy, but in order to develop the humane instincts of all true civilisation. The daily slaughter of thousands of sentient beings with feelings of pain similar to ourselves is, indeed, one of the greatest stains on our national character. We are loth to admit that animals have rights which should not be overruled by mere selfish gratification. Nations, too, who profess a religion of peace, yet hurt and torture animals in the name of science. How different from the teachings of Eastern nations, who hold that all life is sacred ! In the Buddhist writings we read, " He who is tender to all that lives is protected by heaven and loved by man."

The cruelty in connection with flesh-eating is not confined to the slaughter-house ; indeed,

it is to the unfortunate animals often the kindest end to their miserable careers. Trace, for instance, the history of the bulk of the animals imported into this country to be killed for food, and you will find that from their birth on the cattle ranches of the West to their appearance in the form of beef steak, it is a terrible succession of cruelties. An eye-witness speaks as follows with regard to the cruelties in connection with cattle transit : —“ If a cattle boat could be put down in our streets as it is seen in mid-ocean, such a chorus of indignation would rise up from thousands of outraged human hearts that the State authorities would be compelled to put an end to it for ever.” But why should it be necessary to even anticipate such drastic measures when the remedy for all this suffering lies so near at home. Ah ! you say, somebody must do the dirty work. Yes, but there is a vast difference between dirty work and cruel work. Think of the great mass of our fellow-men we condemn every day to keep up this ceaseless and ruthless sacrifice of peace-loving creatures. This awful bloodshed with the knife and pole-axe, and the heartrending cries of the lower creation at the mercy of man, are sufficient in themselves to condemn this whole business of Bloody Carnivorism throughout every Christian land.

An excuse for flesh-eating is often found

in the Bible, the place of refuge for many who would rather evade a guilty conscience. Even enlightened theologians who object to Mosaism in other things, will defend flesh-eating upon the score of the Jews. It is not my intention to quote the Bible in favour of food reform, or to be like the old lady who would not eat potatoes because they were not mentioned in the Scriptures, but rather to appeal to the universal instinct of humaneness existing in all truly cultured peoples. To say that flesh-eating is right because it is permitted by the Bible, when your own conscience condemns it, is simply to confess that your religious creed is worse than your own morality. The Bible is a book dealing with spiritual principles which are in no wise opposed to the practice of an altruistic dietary, which aims at a healthy body in a healthy mind, and all in a healthy soul.

When we come to consider the higher aspects of our subject, we note that there is a very close connection between diet and our other habits of living. The whole commercial system is chiefly centred in our food supply, and individually we are largely ruled by our stomachs. A simpler diet would give us more leisure to live, besides promoting habits of health, peace, and brotherhood. Food Reform is, indeed, a philosophy of living, which extends kindness to the lower animals and brings joy and happiness into the life of

humanity. It may not be the diet of the super-man, but in all ages from Pythagoras to Rousseau and Tolstoy, great minds have written testifying to the value of a non-flesh diet. The temperance question is intimately related to the diet question, and it has been shown from experiments tried at inebriate homes that there is a close connection between a stimulating diet and the desire for alcoholic drinks. Mrs. Bramwell Booth, speaking of her patients, says that their recovery "has been very much quickened and more permanent since we have abolished meat from the diet. The percentage of good results has been higher than we have realised before."

The objections to Food Reform are similar to those urged against most reforms, and are usually based upon superstition and ignorance. Some imagine that this diet will not do for hard work, not knowing the low nutritive value of butcher-meat, the tests conducted at Yale and Harvard Universities by scientific experts, or that many of the strongest nations (the Spartans, Romans, Arabs, Japanese, Highland Scotch, etc.), have been practically non-meat-eaters.

With regard to leather, meat-eaters need to be reminded that food reformers do not eat their boots, and that it is only the excessive use of leather by us that is inconsistent. Besides, the substitutes for leather now on the

market are removing this objection, and the difficulty often is to procure real leather.

A little thought will answer most of the stock objections to a meatless dietary, which are often cowardly excuses, and rarely a defence of carnivorism. In fact, what is in reality the greatest obstacle to Food Reform is not direct refutation, but gross indifference as to whether it is right or wrong. This attitude, along with its sister one, namely, "What will so-and-so think?" indicates, I believe, the true position shown by most outsiders towards this question of diet. As to being indifferent, certainly it is not so difficult to be so, so long as you can get others to kill what you eat, but how can you square this with the ethics of "Doing unto others as ye would that they should do to you?" And instead of wondering what so-and-so will think, rather wonder what we owe to those in all ages who have suffered for the cause of truth.

In conclusion, remember that after all has been said, the best test of food reform is a personal trial, and that a trial depends largely upon its motive and method. After twenty years' experience, I am firmly convinced that wherever this diet is given a fair trial it will prove much superior to the average mixed diet. But do not imagine, if your trial be for health reasons, that years of wrong living can be made up for in a few

weeks, or that diet alone will cure all diseases. We must aim at an all-round natural life, for the ideal diet can only be assimilated by ideal digestive organs. We must live closer to Nature in the fresh air and sunshine, beside the birds, trees, flowers, and all this beautiful world only waiting to be known.

Lastly, I would appeal for a diet which is more in keeping with our higher evolution. Let us cease to eat our fellow creatures, and adopt a purer and more humane form of nourishment, which will have an influence for good throughout our whole lives. A life which teaches us to be more Christ-like in whatsoever we do, showing meekness in all our actions, breathing a spirit of toleration to all alike, and hastening the coming of that glorious day when, as the prophet Isaiah has foretold in his noblest vision, the whole earth shall be full of the knowledge of the Lord, the lion shall dwell with the wolf and the lamb, and, to crown all, a little child shall lead them.

The following is a summary of the conclusions reached in the preceding pages :—

Man is not a flesh-eater by nature nor by his humane instincts.

The vegetable kingdom is the source of nourishment for the whole animal kingdom, man included.

The natural diet of man is nuts, fruits, cereals, green and root vegetables.

It is not what we eat but what we assimilate that nourishes the body.

Reform in diet necessitates self-control and individual effort, besides a practical faith in one's ideal.

Changed climatic conditions cause an alteration in man's diet, but not a violation of his fruit-eating anatomy.

Even pure food when eaten in excess of the body's requirements, breaks down into destructive acids and poisonous alkaloids.

To enjoy one's food is essential to its proper digestion, and natural hunger promotes the best appetite.

Pure air, proper exercise, plenty of sunshine, sufficient rest, and a cheerful attitude of mind are essential factors in regaining and maintaining health.

Food reform is but part of man's higher social and spiritual salvation.

PART II

HOW TO BEGIN

It is quite possible in adopting a non-flesh diet to make as many mistakes as on an ordinary mixed régime. Some, especially for humane reasons, leave off eating flesh foods and attempt to live upon what is left in the ordinary daily menu. Such dieting is sooner or later bound to end in failure and throw discredit on our food reform movement.

A very common error with most orthodox writers on dietetics is to refer to a meatless diet as one which requires bulky innutritious meals of cabbages and potatoes, etc. Such ignorance is due largely because they ignore man's frugivorous nature, and are still obsessed by the old proteid theories of Liebig, which he himself latterly revoked, and are to-day completely disproven by the researches of Chittenden, Hindhede, etc. Nuts and pulses are by no means bulky foods, and are indeed the most concentrated foods in existence. Further, we are beginning to see now that there is little danger of our being undernourished if we choose the right kind of food

and get to know something about comparative food values.

Quantity of Food. Whilst it is not advisable to make a regular practice of weighing one's food, the novice should see that his daily ration contains at least :

Protein	..	..	2 oz.
Starch	..	..	12 oz.
Fat	..	..	2 oz.
Mineral matter	..	..	1 oz.

Broadly speaking there is enough of these elements to be found in :—

5 oz. Shelled Nut.
10 oz. Cereals.
30 oz. Fruits and Vegetables

The proteid requirements may also be obtained from $\frac{1}{4}$ lb of lentils, or a similar quantity of cheese. No hard and fast rule can be laid down as to the exact quantity of food required for the average person, the matter being largely an individual question to be settled by experience and reflection.

A warning note must be added here against fixing food values in calories. It is easy to supply the 2000 calories required by the average person by providing a liberal diet of refined sugar, white bread, margarine, etc., if we regard the body simply as a furnace needing to be stoked. The bomb calorimeter may do very well in estimating the heat

measurement of firewood or engine oil, but it is grossly misleading in estimating the fuel required by the psychic living body. The food reformer will prefer a less mechanical theory about the units of energy supposed to be derived from fuel foods, and will see to it that his diet depends more upon its natural combination of protein, starch, fat, and organic salts.

BALANCED MEALS

Few aspects of food reform are so important as knowing how to balance meals correctly. The average mixed feeder usually selects his meals without paying any regard as to whether he is eating building, heat-liberating, or cleansing foods. At a single meal he will take proteins, fats, and starches in the most sloppy mixtures, irrespective of his poor digestive organs and powers of assimilation. No wonder, then, that we have so much dyspepsia in our midst, and so many people addicted to the evils of drug taking.

A properly adjusted meal will contain all the elements essential to healthy nutrition, and will aim at providing the body with natural foods suited to its digestion. It will not depend upon stimulating meats and drinks which clog the tissues with waste poisons, preferring simple and wholesome fare with pure water to supply the liquids.

The building or repairing foods are found chiefly in the proteids contained in nuts, pulses, eggs, cheese, etc., which after their absorption break down into acids. In order to neutralise these acids we must see that our diet contains a liberal amount of positive organic salts, found chiefly in green or salad vegetables.

The starch or cereal foods also contain protein, but are most useful in the production of heat and energy, after which they are reduced to carbon-dioxide gas which must be neutralised by sodium for its successful elimination. An over-indulgence of starchy or sugary foods is a very common cause of acid dyspepsia, the whole digestive track being filled with the products of fermentation. We note, therefore, that salad vegetables supply what we may term the medicinal factor in food, and for a nation of sweet teeth cannot be too strongly recommended.

Fruit also contains valuable organic salts, but as its first effect is acid, it is apt to disagree with those suffering from rheumatism or acidity. Later, however, this acid is changed into an alkaline carbonate and exerts a most beneficial effect upon the system.

The most active agent in fruit is oxygen whose chief function is to induce oxidation of the waste poisons in the tissues. Thus if we take fruit in the morning its oxygen acid acts as a powerful vitaliser, and its potassium

salt feeds and purifies the tissues. Fruit is best eaten alone, especially fresh fruit, and should be eaten more freely during the warmer months of the year.

Vegetables are best eaten in the latter part of the daytime, so that their alkaline salts will help to eliminate the waste poisons which were released by the morning fruit meal. This applies more to the green or salad vegetables, the root vegetables being more of a starchy nature.

An important point to note here is that acid fruits should not be eaten along with vegetables, or taken with starchy foods at the same meal. The ptyalin which is the digestive ferment of the saliva acts best in an alkaline solution, hence if one eats an apple along with bread, mouth digestion is arrested and fermentation is caused in the stomach by the partial neutralisation of the saliva.

ORDER OF MEALS

The ideal aimed at here should be a sufficient number of meals to supply the body's daily requirements with the minimum amount of energy and friction. Regular habits of living must be combined with scientific dieting, the right kind of food being eaten at the proper time. On no account must we bolt our food, or be victims to the very harmful habit of eating between meals. We must

practise hard the art of slow eating, enjoying every morsel of food, and for ever remembering that digestion begins in the mouth.

Three light meals are ample for most people, and should have an interval of at least four hours between them. In some cases two meals are better, especially where work is chiefly of a sedentary nature.

The order of the daily ration should be acid, proteid, alkali ; or fruit, nut, vegetable. This arrangement may be carried out as follows :—

Breakfast. 8 or 9 a.m.

Begin the day well with ripe fresh fruit, apples, pears, oranges or bananas. A few nuts may be added, or taken with sundried raisins or prunes which have been washed and soaked overnight in cold water.

When cereals are eaten at this meal, it is wise to avoid the acid fruits, using dates, raisins, or figs instead. Crisp oat-cakes should be preferred to sloppy porridge, and wholemeal bread or biscuits to white starchy products.

Dinner. 12 noon or 1 p.m.

(a) This meal should consist of very nourishing foods. The unfired feeder will take two or three ounces of shelled nuts or grated cheese, followed by a liberal supply of raw grated carrot or turnip and salad

vegetables. A dressing of nut oil and lemon juice may be used with the vegetables.

Cooked meals may be taken in the form of lentil roast or nut rissoles, baked potatoes, and vegetables conservatively cooked in a casserole without salt. Meatless proteid dishes can be prepared in a pleasing variety of ways, and for actual recipes the reader is advised to consult the literature sold at his local Health Food Stores.

(b) No sloppy milk or acid fruit puddings, but rather a stiff rice or barley and raisin pudding. Better still to take just a few unsweetened biscuits with nut or dairy butter.

Evening Meal. 6 or 7 p.m.

Fresh or dried fruit may be again taken at this meal according to inclination. Those beginning food reform will be better to take finely grated carrot or attractive green salad mixtures. Tomatoes, shredded cabbage, chopped cucumbers, cooked beet-root, and sliced raw onion may be freely used. Eaten along with a boiled egg or a few nuts and some wholemeal bread spread with nut or dairy butter, this should form a substantial repast.

DRINKING AT MEALS

The drinking of liquids at meals, although a practice which is not to be commended, has nevertheless a physiological basis. Many of the foods we use to-day are either cooked or baked until there is very little water left in them. The result is that the saliva, gastric juice, and other secretions are called upon to do extra work which is further increased by the use of salted foods.

Water enters into the composition of all the tissues, and at least two-thirds of the body is made up of water. The daily loss, therefore, of several pints of water through the lungs, skin, kidneys, etc., must be made good ; hence we require an equivalent amount of water daily in our food supply. Fruits and vegetables contain a large quantity of pure water, and in general most foods are well balanced with water. Nevertheless, it is a good plan to drink at least one pint of water daily in addition to that contained in our food.

A distinction must be drawn here between the use of such popular beverages as tea, coffee, or cocoa, and the drinking of water. The former act more as harmful stimulants, affecting the heart and nervous system, besides hindering the processes of digestion. Pure water on the other hand acts as a beneficial solvent, and is essential for the building and cleansing of the tissues.

Tea and coffee stimulation are almost as insidious in their effects as tobacco or alcohol. The same may be said of meat extracts which have an exhilarating effect upon the heart and digestive processes. These are all called temperance drinks, and whilst they do not lead to actual intoxication it is unquestionable that their evil effects are not merely confined to the physical. Not a few to-day are tea and coffee slaves, the victims of the drugs caffeine and theine, poisonous alkaloids which in no sense can be called food drinks.

The active principle in tea, theine, at first exerts a pleasant influence upon the nerve structures of the body, but this is always followed by a depression which is usually greater than the previous stimulation. A cup of strong tea contains two or three grains of theine, almost a full pharmacopœial dose of a dangerous drug which can be procured from any druggist in the form of a white crystalline powder. Coffee excites more the nervous system, but on the whole is less harmful than tea. Cocoa contains a milder alkaloid, theobromine, but has a fair proportion of proteids and is rich in fat. It is commonly adulterated with the alkali carbonate of potash, which may contain the dangerous mineral poison arsenic.

The almost universal use of these stimulating beverages is perhaps the strongest argument in their favour, and it is quite possible

that where not taken to excess they may have a medicinal value. Tea and coffee have powerful diuretic effects upon the kidneys, and may thus help in the excretion of waste poisons. China tea is less harmful than the Indian or Ceylon varieties, and the best quality of tea is usually the dearest, being made from the tender tips of the plant.

Those, however, who esteem the virtue of self-control, and who wish to possess radiant health, will boldly give up entirely the use of these nerve-weakening stimulants.

Health Drinks.—The best liquid to drink is pure spring water. Cold water acts as a natural stimulant, and is a powerful aid to digestion. Where any doubt exists as to its purity it should be boiled or distilled, so as to remove all organic impurities. It is a good plan to drink a glass of water the first thing in the morning and the last thing at night ; also half-an-hour before meals. Less water is required where the diet consists mainly of fruit and vegetables, or where other food drinks are used.

Appetising cooling fruit juices can be made from lemons, limes, oranges, raisins, etc., as well as saline drinks made from herbal juices. A cup of clear vegetable soup taken the last thing at night serves as a valuable aid for those suffering from a lack of organic salts in their food. Aerated drinks and so-called non-alcoholic beverages are seldom wholesome

as they are usually dosed with sugar and preservatives.

Pleasant substitutes for tea and coffee may be made at home from roasted acorns, bran, dandelion roots, date stones, finely cut figs, or from dried bananas. Quite a number of cereal beverages are already on the market which can be recommended to those who feel the need for warm stimulating drinks. These, however, should be used in strict moderation, as the proteids of cereals when roasted develop similar harmful properties to the caffein elements in tea and coffee.

THE DIET CURE

Most diseases are caused by an accumulation of waste poisons in the system, which are chiefly the result of wrong or over feeding. To eliminate these waste products, we must stimulate the natural healing forces of the body, remembering that the same principles which keep us well should also make us well.

Drugs, vaccines, serums, or anti-toxins are dangerous remedies and succeed at the most by paralysing the sense of pain or suppressing the mere symptoms of disease. By introducing these inert and poisonous materials into the body, we set up other morbid conditions which can only lead ultimately to further injury.

It is best, therefore, to get our medicines

from vital foods, and try to assist nature in every way to remove the causes of our wrong living. Nature, we note, does not provide any particular remedy for disease, nor can health be attained or regained without our faithful obedience to the general laws of healthy living.

ADENOIDS.—These and gland troubles are caused chiefly by an excess of starchy and sweet foods. Cutting out the glands will not cut out the accumulated waste poisons which clog the adenoids, tonsils, etc. The best remedy is to stop eating white bread and refined sugar, deprived of organic salts and vitamins. The craving for sweets with children is a sure indication that fruit should form a large proportion of their dietary.

ANÆMIA.—This disease is associated with a deficiency of red blood corpuscles, and a lack of fresh air and sunshine. The diet should consist of foods rich in iron, especially spinach, lettuce, leeks, watercress, strawberries and gooseberries.

ASTHMA.—This chest complaint and bronchial affections indicate that the body is unable to eliminate in a normal manner the waste products with which it is clogged. When the skin and kidneys are overburdened, the bronchial tubes have to do the extra work. Salads should be eaten freely and foods rich in iron, sulphur, and calcium. See diet chart for list. Vapour baths will promote

skin action, and herbal teas made from juniper or buchu leaves will improve the action of the kidneys.

CANCER.—A disease of modern civilisation which increases in proportion as we consume¹⁰ butcher-meat, white bread, refined sugar, and highly spiced foods. Operations can only give temporary relief, and always hinder natural curative measures. The safest remedy is to adopt a natural, non-stimulating diet composed chiefly of fresh fruits and salad vegetables. Meals should consist mainly of uncooked foods, and the proteid element should be cut down to the minimum. As this disease is more prevalent amongst people of an advancing age, it shows that it is the result of years of faulty nutrition.

CONSTIPATION.—A widespread malady which is the root cause of most other ailments. Reliance upon drugs and enemas ultimately destroys the normal action of the bowels. Sufferers should avoid the use of white bread, and soft, mushy foods. The diet cure is to use freely laxative fruits, such as figs, prunes, raisins, etc., especially at breakfast time. Bread should be made from wholemeal flour, and must be thoroughly masticated. Outdoor exercise is necessary to establish permanent relief.

CONSUMPTION.—This disease is usually credited as being caused by germs, but whilst the medical profession have tried no end of

serums they have failed to lower its mortality. They have ignored greatly the fact that germs can only thrive in vitiated atmospheres, where sunlight and fresh air are excluded. Consumption is rarely present without such predisposing causes as anæmia, and general faulty nutrition. Poor blood and low vitality are the main inroads of this disease, hence so long as people live in congested areas and eat devitalised foods we may expect pulmonary and other forms of tuberculosis. Air and light baths are important factors in the natural cure of this disease. Food should consist mainly of fruits, nuts, and green vegetables. Cereals should be eaten sparingly. Unfermented fruit juices are highly beneficial.

DIABETES.—A disorder which is due mainly to overeating and years of wrong feeding. The starchy foods which are normally converted into sugar and stored up as glycogen by the liver, are allowed to enter the blood stream in the form of sugar. Administering insulin to deal with this condition is a dangerous remedy, and has caused many fatal results. Sufferers should avoid the use of saccharin as a sweetening agent, for this is an artificial coal-tar derivative. The diet should be rich in the element sodium, so as to improve the combustion of starchy foods. Low protein foods are best, accompanied by plenty of green leaf salads and raw grated root vegetables.

INDIGESTION.—The most common causes of indigestion are overeating, wrongly balanced foods, and not taking enough time to meals. Dry feeding is very important in the cure of this almost universal complaint, hence the victim should avoid soft mushy and especially fried foods. A slight fast will be helpful in most cases, after which it is advisable to dine upon very plain fare. Bread should be well toasted, and chewing encouraged by the use of crisp wholemeal biscuits. Acid fruits are better left alone until all signs of acidity disappear. Liquids should be taken only between meals, and it is a good plan to drink warm water first thing in the morning and the last thing before retiring.

INFLUENZA.—Any sudden change from a hot to a cold temperature causes the blood vessels and skin to contract. Waste poisons are then forced through the mucous membranes, accompanied by general feverish conditions. An exclusive fruit diet should be adopted, using oranges, grapes and lemons freely. Warm baths will promote skin action, and the patient should keep in bed. Colds and catarrh should be checked in their initial stages by abstaining from food for a little, including mineral salt. Take warm lemon drinks, without adding sugar.

NERVE TROUBLE.—Avoid bromide, strychnine, phenacetin, and other mineral drugs which suppress the symptoms for a time, but

render a radical cure well nigh impossible. Give nature a chance, and take your medicine in the form of fresh living fruits and salad vegetables rich in organic salts. See that the diet contains sufficient fat, and the elements phosphorus and sodium. Eat freely of raw cabbage, onions, apples, and take olive oil with salads. Sufficient rest and sleep are essential in restoring normal conditions.

RHEUMATISM.—This complaint, like gout, is the result of eating foods which contain an excess of uric acid or negative elements. Avoid flesh foods, tea, coffee, legumes, sugar, and the use of condiments. The patient should adopt a diet rich in positive elements, especially spinach, lettuce, cabbage, baked potatoes, raw grated carrot or turnip. Hot packs should be placed upon affected parts, and a daily wet rub taken to improve skin elimination. It is wise to clothe warmly, and take as much blood circulating exercise as possible daily.

SKIN TROUBLES.—These indicate that nature is using the skin as an outlet for impurities of the blood. Never attempt to drive these inwards by mercurial or sulphur ointments, for you cannot poison the germs without poisoning the affected parts of the body. The cure consists in avoiding constipation, and dining chiefly on fresh fruits and herbal salads. Sun and air baths are great aids in most cases, hence clothing

should be light and porous so as to increase the activity of the skin.

TEETH.—Bad teeth are caused both by internal and external causes. The most important destructive agents are subsisting on a diet poor in tooth-building organic salts, and the continual use of soft foods which evade mastication. The hardy Scotch were a vigorous race when they lived on oatcakes and wholemeal barley scones ; but now they are sadly lacking in physique with decayed teeth ever since they changed their diet to white bread, white sugar, and refined cereal products. Most children have their teeth injured by vaccination in infancy, a method of preventing disease which is opposed to the teaching of hygiene and the wisdom of common sense.

The proper treatment for defective teeth is to see first that the food contains a supply of lime salts, lime being the chief constituent of the teeth. Raw salad and grated root vegetables are excellent for this purpose, To keep the teeth clean chew well, apples and wholemeal biscuits. The best dentifrice is tepid water, made slightly acid by lemon juice. Avoid preparations containing poisonous antiseptics. A good dentist will save many a tooth by a timely filling.

VARICOSE VEINS.—This obstinate trouble is often the result of constipation and liver complaints. The sufferer should avoid opera-

tions and tight rubber bandages. Cold wet compresses should be applied in a resting position, and a cr pe bandage worn during the day. The diet should consist as much as possible of uncooked foods, cutting down starchy and cereal foods to the minimum. Fluids should be taken sparingly in order to give relief.

HEALTH MAXIMS

Live as much as possible in the pure air and sunshine.

Practise deep breathing, and always through the nose.

Begin the day early, with a wet rub from head to foot, using cold or tepid water.

Wear light coloured clothes, and porous underwear.

Eat only when hungry, and drink only when thirsty.

Dine chiefly on fruits, nuts, cereals, root and salad vegetables.

Quench your thirst with pure, soft, cold water.

90 DIET AND GOOD HEALTH

Take regular exercise in the open air, so as to aid digestion and promote good circulation.

Learn how to relax your muscles, and economise your available life force.

Retire to bed early; and sleep with windows wide open.

Live simply, be content with few physical wants, and make the most of present circumstances.

Aim at possessing radiant health, and try to be of more real service in the world.

INDEX.

Acids, fruit, 33
Adenoids, 83
Agriculture, 15
Albumen, 13
Alcohol, 41
Alkaline salts, 44
Anæmia, 83
Analysis of foods, 20
Anatomy, physical, 11
Apples, 16, 33
Asthma, 83
Atmosphere, 13, 44

Bananas, 33
Bible, 67
Bread, 35, 77
Breakfast, 77
Burbank, Luther, 60
Butter, 36

Cabbage, 16, 38
Calcium, 16
Calories, 73
Cancer, 84
Canine Teeth, 31
Carbohydrates, 13
Cereals, 35
Cheese, 33
Children, 55
Chlorine, 17
Chyle, 23
Climate, 11, 26, 49
Cocoa, 40
Coffee, 51
Cooking, 52, 56
Condiments, 39
Constipation, 84
Consumption, 84

Dates, 33
Diabetes, 85
Digestion, 22
Disease, 17, 82
Drugs, 82

Eggs, 53
Enzymes, 18
Eskimo, 27, 47
Evolution, 26
Exercise, 25, 84

Fats, 14, 36, 43
Figs, 33, 84
Flesh meat, 24, 48
Food supply, 12
Frugivorous, man, 11
Fruit, 33, 75
Fruit sugar, 33
Fruit acids, 33

Germs, 84
Glacial Period, 26
Gooseberries, 33, 83
Grapes, 86

Heat producing, 49
Hot Country, 26
Hydrogen, 13, 43
Hygiene, 64

Iceland, 27
Indigestion, 86
Influenza, 86
Intestine, 25
Iron, 17, 20, 83

Kidneys, 40, 84

Land, 57
Leather, 68
Lemons, 34, 86
Lentils, 32
Liquids, 40
Liver, 24

Magnesium, 16
Manganesec, 18
Mastication, 10, 55, 86
Meals, 76
Milk, 53
Mineral Salts, 14, 53

Natural Food, 11
Nerve Troubles, 86
Nuts, 11, 32

Oatmeal, 36
Olive Oil, 37
Oranges, 34
Oxygen, 13

Phosphorus, 17
Potassium, 16
Potatoes, 38
Proteids, 13, 32
Prunes, 77
Pulse foods, 32
Ptyalin, 18, 76

Raisins, 34
Rheumatism, 24, 87
Rice, 16, 36, 46

Saccharin, 35, 85
Saliva, 22, 76
Salt, Table, 39
Science, new soil, 62
Skin troubles, 87
Silicon, 17
Simpler lives, 64
Sodium, 16
Spinach, 17, 83
Stomach, 22
Strawberries, 83
Sugar, 34
Sulphur, 17

Tea, 79
Teeth, 88
Temperance, 68
Thoracic duct, 24
Tomatoes, 38

Urea, 24
Uric acid, 24, 87

Vegetables, 38, 43
Veins, 88
Vitamines, 18

Walnuts, 32
War spirit, 28
Waste poisons, 24, 82
Water, 13, 31
Wheat, 17, 35
Woman, 56

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